

## II. REMARKS

Claims 83, 88-94, 96, 97, 117, 123-124, 152-153, 155-156, 158, 161-163, and 180-294 are currently pending in the application, of which claims 83, 117, 152, 161, 180, 200, 220, 223, 229, 233, 237, 240, and 243 are independent claims. Claims 200, 205, 209 and 220 have been amended with this paper.

Applicants respectfully submit that the above amendments do not add new matter to the application and are fully supported by the specification. Support for the amendments may be found at least in Figure 7 and at page 16, line 11 to page 17, line 18 of the specification.

In view of the above Amendments and following Remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

### A. Interview

Applicants appreciate the courtesy extended by the Examiner on January 31, 2007 to conduct an interview for the above-referenced application. At the interview, Applicants explained that the rejections under section 101 were improper because claims 200-219 as presented were statutory subject matter. The Examiner suggested amendments to those claims to recite some action relative to data to overcome the rejection. Although Applicants do not agree that such an amendment is necessary, Applicants agreed to consider making such an amendment.

In addition, the “single means” rejection under section 112, first paragraph was discussed and the Examiner suggested adding an additional element. Again, Applicants agreed to consider that suggestion.

As to the art-based rejections under section 103, Applicants explained that the Office’s understanding on obviousness was incorrect. The claims recite a relationship between data

channels and spreading codes that is not specifically mentioned in the applied references and the Office fails to provide any motivation or suggestion why the specific relationships recited would be used. This response addresses each of these subjects discussed in the interview.

**B. Allowable Subject Matter**

Applicants appreciate the indication of allowable subject matter in claims 83, 88-94, 96, 97, 117, 123, 124, 152, 153, 155, 156, 158 and 161-163.

**C. The Section 101 Rejections**

Claims 200-219 were rejected under 35 U.S.C. § 101 as allegedly failing to be directed to statutory subject matter. The Office Action alleges that the claims do not “contain a tangible result.” Allocating, the Office Action alleges, does not yield a concrete result. Applicants disagree. Allocation achieves a tangible result. Nevertheless, based on suggestions provided by the Examiner at the interview, claim 200 has been amended to recite “receiving data” and “spreading data.” Applicants believe that the rejection has been overcome and requests notification accordingly.

**D. The Section 112, First Paragraph Rejections**

Claims 220-222 stand rejected under section 112, first paragraph, as allegedly providing only a single means. First, *In re Hyatt* does not hold that all single means claims are invalid under section 112. That case requires that the Office further establish that the “means” covers all conceivable structures for achieving the function. The Office failed to meet that burden. Nevertheless, to expedite review of these claims, claim 220 has been amended to add a second element to the claims so that there is more than one “means” recitation. It is believed that this rejection is overcome and notification accordingly is requested.

**E. The Current Art Rejections**

Claims 180, 181, 183-185, 187-190, 192-201, 203-205, 207-210, 212-219, 233, 234 and 237-244 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 6,108,369 issued to Ovesjo, *et al.* (“Ovesjo”) in view of U.S. Patent No. 5,734,647 issued to Yoshida, *et al.* (“Yoshida”).

Claims 182, 186, 191, 202, 206, 211, 220-232, 235, 236 and 245-247 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Ovesjo in view of Yoshida and further in view of U. S. Patent No. 6,009,091 issued to Stewart, *et al.* (“Stewart”). Applicants respectfully disagree for all of the reasons set forth in the previous response (which are set forth below with additional discussion) and for at least the following additional reasons.

**1. The Office Action’s “Response to Argument” Contains Errors**

The “Response to Argument” section contains some errors that demonstrate why there is no motivation to modify Ovesjo in view of Yoshida as proposed.

*First*, the Office Action is confusing data channels and control channels. In response to Applicants’ argument that it is logical to apply C<sub>4,1</sub> and then C<sub>4,2</sub> when applying spreading codes to data channels, the Office Action states that “the Examiner disagrees. Ovesjo provides an example of selecting C<sub>4,1</sub> for one channel and C<sub>8,5</sub> for a second channel.” This is wrong because the discussion in Ovesjo to which the Office Action cites describes selecting C<sub>4,1</sub> *for a control channel - not a data channel* as recited in the various claims being addressed. Specifically, the cited portion states:

“For example, if the **PCCH** is allocated code C<sub>4,1</sub> and a **PDCH** is allocated code C<sub>8,5</sub>, then these two spread channels would be orthogonal.”

PCCH refers to a ***control channel*** (col. 3, lines 2-3) and PDCH refers to a ***data channel*** (col. 3, lines 10-14). This example does not provide any example from Ovesjo or Yoshida of using a C<sub>4,1</sub> spreading code for two ***data channels*** and then C<sub>4,3</sub> for a third ***data channel*** because the example relates to use of one code on the control channel and a different code on a data channel. Oversjo does not even discuss two, let alone, three different data channels in that passage.

***Second***, the Office Action is confusing the number system used by Applicants with that used by Ovesjo such that this example actually describes using C<sub>4,1</sub> and then skipping C<sub>4,2</sub> to use C<sub>4,3</sub> on the next data channel. Applicants are using the numbering system of C<sub>4,0</sub>, C<sub>4,1</sub>, C<sub>4,2</sub>, and C<sub>4,3</sub>, whereas Ovesjo is using C<sub>4,1</sub>, C<sub>4,2</sub>, C<sub>4,3</sub>, and C<sub>4,4</sub> for the exact same sequences. Similarly, Applicants are using C<sub>8,0</sub>, C<sub>8,1</sub>, C<sub>8,2</sub>, C<sub>8,3</sub>, C<sub>8,4</sub>, C<sub>8,5</sub>, C<sub>8,6</sub>, and C<sub>8,7</sub>, whereas Ovesjo would use the numbering system of C<sub>8,1</sub>, C<sub>8,2</sub>, C<sub>8,3</sub>, C<sub>8,4</sub>, C<sub>8,5</sub>, C<sub>8,6</sub>, C<sub>8,7</sub>, and C<sub>8,8</sub> for the exact same sequences.

The table below shows the sequences and the corresponding differences in numbering.

Sequence	Applicants' Numbering	Ovesjo's Numbering
1, 1, 1, 1	C <sub>4,0</sub>	C <sub>4,1</sub>
1, 1, -1, -1	C <sub>4,1</sub>	C <sub>4,2</sub>
1, -1, 1, -1	C <sub>4,2</sub>	C <sub>4,3</sub>
1, -1, -1, 1	C <sub>4,3</sub>	C <sub>4,4</sub>

Similarly, for eight elements in the sequence, the differences are as follows:

Sequence	Applicants' Numbering	Ovesjo's Numbering
1, 1, 1, 1, 1, 1, 1, 1	C <sub>8,0</sub>	C <sub>8,1</sub>
1, 1, 1, 1, -1, -1, -1, -1	C <sub>8,1</sub>	C <sub>8,2</sub>
1, 1, -1, -1, 1, 1, -1, -1	C <sub>8,2</sub>	C <sub>8,3</sub>
1, 1, -1, -1, -1, -1, 1, 1	C <sub>8,3</sub>	C <sub>8,4</sub>
1, -1, 1, -1, 1, -1, 1, -1	C <sub>8,4</sub>	C <sub>8,5</sub>
1, -1, 1, -1, -1, 1, -1, 1	C <sub>8,5</sub>	C <sub>8,6</sub>
1, -1, -1, 1, 1, -1, -1, 1	C <sub>8,6</sub>	C <sub>8,7</sub>
1, -1, -1, 1, -1, 1, 1, -1	C <sub>8,7</sub>	C <sub>8,8</sub>

As a result, Ovesjo's reference to C<sub>4,1</sub> in the Office Action is a reference to the code 1, 1, -1, -1. Ovesjo's reference to C<sub>8,5</sub> is a reference to 1, -1, 1, -1, 1, -1, 1, -1. Translating to Applicants' numbering, the example cited in the Office Action from Ovesjo (col. 5, lines 27-29) describes using C<sub>4,0</sub> on the control data channel and C<sub>8,4</sub> (a code from the C<sub>4,2</sub> branch) on a data channel. Therefore, the Examiner's statement that Ovesjo teaches using C<sub>4,1</sub> and then C<sub>4,3</sub>, is clearly not correct either. The Office Action has still failed to cite any teaching, example, or otherwise as to why one of ordinary skill in the art would apply C<sub>4,1</sub> to the first two *data channels* used and C<sub>4,3</sub> to the third *data channel* used.

2. There Is No Suggestion to Select the Specific Codes For the Specific Channels Recited in the Claims Based on Ovesjo or Yoshida

As discussed in the previous Response, in each of the rejections, the Office Action relies on Ovesjo to disclose spreading codes applied to multiple channels (e.g., split between in-phase

and quadrature-phase data in pairs) and the use of the OVSF codes (e.g., C<sub>4,1</sub>, C<sub>4,2</sub>, C<sub>4,3</sub> and C<sub>4,4</sub> of Ovesjo). The Office Action then recognizes that Ovesjo does not disclose using the same spreading code to the first two data channels used.

The Office Action then relies on Yoshida for a teaching of using of the same spreading code to the first two data channels used. The Office Action then concludes that it would have been obvious to “use the same spreading code for each I and Q pair as taught by Yoshida in the method of Ovesjo to minimize the number and complexity of spreading codes used. This in turn would allow the data rate to be at a maximum.” Then, without citation, the Office Action concludes “When three data channels are used, the first, second, and third data channels are used.” The Office Action’s analysis is both incorrect and insufficient to demonstrate the obviousness of the previously presented claims.

As described below in reference to specific claims, Ovesjo fails to disclose a system for assigning specific spreading codes to specific data channels where two data channels are assigned one spreading code and the third is assigned a different one and where those codes are C<sub>4,1</sub> to the first two data channels used and C<sub>4,3</sub> to the third data channel used.<sup>1</sup> Yoshida simply cannot make up for that deficiency because, at most, Yoshida teaches use of the *same spreading code* for two data channels. Yoshida, like the discussion in Ovesjo at lines 36-43 of column 6, describes use of one code on the I and Q channels.

What the Office Action fails to support, however, is its contention that one of ordinary skill in the art would be motivated to choose to use an OVSF code with a spreading factor of 4

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<sup>1</sup> In the previous Response, Applicants asserted that Ovesjo describes using a different spreading code on every channel. Upon further review and discussion with the Examiner at the interview, Applicants acknowledge that Ovesjo indicates that a data channel “could” allocate a code already allocated to one data channel to another data channel “if it is assigned to the opposite transmitter branch of the PDCH which has already been assigned this spreading code.” See Ovesjo, Col. 6, lines 36-43.

and a code number of 1 using a code numbering scheme starting with 0, i.e.,  $C_{4,1}$ , (the second of the four sequences) **for the first two data channels** and an OVSF code with a spreading factor of 4 and a code number of 3 using a code numbering scheme starting with 0, i.e.,  $C_{4,3}$ , (the last of the four sequences) **for the third data channel.**<sup>2</sup> The Office Action fails to identify why one of ordinary skill in the art would have been motivated to use the specific codes of  $C_{4,1}$  **for the first two data channels** used and  $C_{4,3}$  **for the third data channel** used. As discussed above, the examples in Ovesjo suggest that allocating a specific spreading code to a data channels is not important so long as the system “allocate[s] a spreading code which makes the [data channel to be allocated] orthogonal to the [control channel] … and which makes the [data channel to be allocated] orthogonal to any other [data channel] that is on the same I or Q branch of the transmitter” (col. 6, lines 26-30). Thus, Ovesjo clearly teaches away from any importance of using the specific codes of  $C_{4,1}$  **for the first two data channels** used and  $C_{4,3}$  **for the third data channel**, so long as the spreading code assigned to the third data channel is orthogonal to the spreading code assigned to the first data channel (and the spreading code assigned to the control channel).

Indeed, later in a more specific example, Ovesjo indicates that where  $C_{4,1}$  is allocated to the control channel and  $C_{8,5}$  is allocated to a data channel, the next data channel “could then be allocated **any** of codes  $C_{8,3}$ ,  $C_{8,4}$ ,  $C_{8,6}$ ,  $C_{8,7}$ , or  $C_{8,8}$ .” Ovesjo, Col. 6, lines 37-43. Ovesjo thus fails to provide any direction as to using the specific codes of  $C_{4,1}$  **for the first two data channels** used and  $C_{4,3}$  **for the third data channel** used.

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<sup>2</sup> As noted above, the present application, including the pending claims, uses the OVSF code numbering of ( $C_{4,0}$ ,  $C_{4,1}$ ,  $C_{4,2}$  and  $C_{4,3}$ ).

As a result, the Office Action fails to provide a *prima facie* case of obviousness.

Essentially, the Office Action engages in an “obvious to try” analysis, asserting that it would have been obvious to one of ordinary skill in the art to try any of the various combinations of codes suggested by Ovesjo. The Federal Circuit squarely rejected applying an “obvious to try” standard as an “error” in analysis.

As explained in *In re O’Farrell*, 853 F.2d 894, 902 (Fed. Cir. 1988), “obvious to try” is not the standard. *Id.* “In some cases, what would have been ‘obvious to try’ would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful.” *Id.* Where there is no indication of a direction of which of many possible choices is likely to be successful, despite something being possible ‘obvious to try,’ the Office fails to meet its burden to establish a *prima facie* case of obviousness. *Id.; In re Geiger*, 815 F.2d 686, 688 (Fed. Cir. 1987).

In the *Geiger* case, the Examiner issued an obviousness rejection where all of the various components recited in the claim were known for use in water treatment and the Office was contending that using any of the components in any combination would have been obvious. *Id.* at 686. “Based upon the prior art and the fact that each of the three components of the composition used in the claimed method is conventionally employed in the art for treating cooling water systems, the board held that it would have been *prima facie* obvious, within the meaning of 35 U.S.C. § 103, to employ these components in combination for their known functions and to optimize the amount of each additive.” *Id.* The Federal Circuit reversed, finding that the Office failed to establish a *prima facie* case of obviousness. The Office failed to

point to establish that there was any direction to select the *claimed relationship* among the components. *Id.* at 688.

Here, as in *Geiger*, the Office acknowledges that Ovesjo fails to describe the specific selection of spreading codes recited in the claims (C<sub>4,1</sub> for the first two data channels and C<sub>4,3</sub> for the third data channel). It attempts to explain why one of ordinary skill in the art might select one spreading code for the first two data channels and a different code for the third data channel (although that argument lacks support as well). Yet it never even attempts to provide any indication that there is any “direction” in any reference to use C<sub>4,1</sub> for the first two data channels used and C<sub>4,3</sub> for the third data channel used. Under *Geiger*, assertions like these amount to merely a statement that the claimed features may have been “obvious to try,” but fail to present a *prima facie* case of obviousness of any of the claims.

1. Independent Claim 180 is Patentable Over the Combination of Ovesjo and Yoshida

Claim 180 recites a spreading method for a mobile station comprising: “spreading a first one of the data channels by C<sub>4,1</sub>; spreading a second one of the data channels by C<sub>4,1</sub>; and spreading a third one of the data channels by C<sub>4,3</sub>, wherein . . . **when three and not more than three of the data channels are used, the first one of the data channels, the second one of the data channels, and the third one of the data channels are used.**” Here, “[a data channel] is used” may mean that that data is transmitted using the data channel or the data channel is transmitted. As discussed above, claim 180 recites a first one and second one of the data channels being spread by a first spreading code, here C<sub>4,1</sub>, and a third one of the data channels being spread by a second spreading code, which here is specifically identified as C<sub>4,3</sub>, when three and not more than three of the data channels are used, the first one of the data channels, the

second one of the data channels, and the third one of the data channels are used. In addition to the failure of the Office Action to identify why one of ordinary skill in the art would have been motivated to use one spreading code for two channels and another spreading code for a third channel based on Ovesjo and Yoshida, the Office Action also fails to identify why it would have been obvious to modify the already defective combination of Ovesjo and Yoshida to *use the specific codes of C<sub>4,1</sub> for the first one and the second one of the data channels and C<sub>4,3</sub> for the third one of the data channels, when three and not more than three of the data channels are used, the first one of the data channels, the second one of the data channels, and the third one of the data channels are used.* Indeed, logically, when two codes are used *for data channels* and the first code to be used is C<sub>4,1</sub>, one would expect that *the second code to be used to be C<sub>4,2</sub>, not C<sub>4,3</sub>*, because C<sub>4,1</sub> and C<sub>4,2</sub> are sequential to one another in the OVSF code tree. Accordingly, for all of these reasons, the rejection of claims 180 and its dependent claims should be withdrawn.

2. Independent Claim 200 is Patentable Over the Combination of Ovesjo and Yoshida

Claim 200 recites a spreading method for a mobile station comprising: “receiving first data on a first one of the data channels; receiving second data on a second one of the data channels; receiving third data on a third one of the data channels; spreading the first data with C<sub>4,1</sub>; spreading the second data with C<sub>4,1</sub>; and spreading the third data with C<sub>4,3</sub>, wherein *when three and not more than three of the data channels are used, the first one of the data channels, the second one of the data channels, and the third one of the data channels are used*, and C<sub>I,K</sub> represents an orthogonal variable spreading factor code, with I being a spreading factor and K being a code number, wherein 0≤K<I.” Here, “[a data channel] is used” may mean

that data is transmitted using the data channel or that the data channel is transmitted. As similarly discussed above with respect to claim 180, claim 200 recites spreading the data on the first one and the second one of the data channels with a first spreading code, here  $C_{4,1}$ , and spreading the data on the third one of the data channels with a second spreading code, which here is specifically identified as  $C_{4,3}$ , wherein when three and not more than three of the data channels are used, the first one of the data channels, the second one of the data channels, and the third one of the data channels are used. In addition to the failure of the Office Action to identify why one of ordinary skill in the art would have been motivated to use one spreading code for two channels and another spreading code for a third channel based on Ovesjo and Yoshida, the Office Action also fails to identify why it would have been obvious to modify the already defective combination of Ovesjo and Yoshida to *spread data on the first one and second one of the data channels with a specific code  $C_{4,1}$  and spread data on the third one of the data channels with another specific code  $C_{4,3}$ , when three and not more than three of the data channels are used, the first one of the data channels, the second one of the data channels, and the third one of the data channels are used.* Indeed, logically, when two codes are used *for data channels* and the first code to be used to be  $C_{4,1}$ , one would expect that *the second code to be used to be  $C_{4,2}$ , not  $C_{4,3}$* , because  $C_{4,1}$  and  $C_{4,2}$  are sequential to one another in the OVSF code tree. Accordingly, for all of these reasons, the rejection of claims 200 and its dependent claims should be withdrawn.

3. Independent Claim 220 is Patentable Over the Combination of Ovesjo, Yoshida and Stewart

Claim 220 recites a mobile station comprising: “means for spreading the first one of the data channels by  $C_{4,1}$ , the second one of the data channel by  $C_{4,1}$ , the third one of the data channels by  $C_{4,3}$ , the fourth one of the data channels by  $C_{4,3}$ , the fifth one of the data channels by

$C_{4,2}$ , the sixth one of the data channels by  $C_{4,2}$ ,” “*wherein a first one of the data channels, a second one of the data channels, and a third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used.*”

Here, “[a data channel is] configured to be used” may mean that data is configured to be transmitted using the data channel or that the data channel is configured to be transmitted. As similarly discussed above, in addition to the failure of the Office Action to identify why one of ordinary skill in the art would have been motivated to use one spreading code for two channels and another spreading code for a third channel based on Ovesjo and Yoshida, the Office Action also fails to identify why it would have been obvious to modify the already defective combination of Ovesjo and Yoshida to *use the specific codes of  $C_{4,1}$  for the first one and the second one of the data channels and  $C_{4,3}$  for the third one of the data channels, wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used.* Indeed, logically, when two codes are used *for data channels* and the first code to be used is  $C_{4,1}$ , one would expect that *the second code to be used to be  $C_{4,2}$ , not  $C_{4,3}$* , because  $C_{4,1}$  and  $C_{4,2}$  are sequential to one another in the OVSF code tree. Accordingly, for all of these reasons, the rejection of claims 220 and its dependent claims should be withdrawn.

4. Independent Claim 223 is Patentable Over the Combination of Ovesjo, Yoshida and Stewart

Claim 223 recites an apparatus for a mobile communication system comprising “the first spreading unit configured to spread a first one of the data channels by  $C_{4,1}$ ; a second spreading unit configured to spread a second one of the data channels by  $C_{4,1}$ ; a third spreading unit

configured to spread a third one of the data channels by C<sub>4,3</sub>; a fourth spreading unit configured to spread the at least one control channel by C<sub>256,0</sub>, . . . wherein *the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used.*” Here, “[a data channel is] configured to be used” may mean that data is configured to be transmitted using the data channel or that the data channel is configured to be transmitted. As discussed above, claim 223 recites the first one and the second one of the data channels being spread by a first spreading code, here C<sub>4,1</sub>, and the third one of the data channels being spread by a second, which here is specifically identified as C<sub>4,3</sub>, wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used. In addition to the failure of the Office Action to identify why one of ordinary skill in the art would have been motivated to use one spreading code for two channels and another spreading code for a third channel based on Ovesjo and Yoshida, the Office Action also fails to identify why it would have been obvious to modify the already defective combination of Ovesjo and Yoshida to *use the specific codes of C<sub>4,1</sub> for the first one and the second one of the data channels and C<sub>4,3</sub> for the third one of the data channels, wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used.* Indeed, logically, when two codes are used *for data channels* and the first code to be used is C<sub>4,1</sub>, one would expect that *the second code to be used to be C<sub>4,2</sub>, not C<sub>4,3</sub>*, because C<sub>4,1</sub> and C<sub>4,2</sub> are sequential to one another in the OVSF code tree. Accordingly, for all of these reasons, the rejection of claims 223 and its dependent claims should be withdrawn.

5. Independent Claim 229 is Patentable Over the Combination of Ovesjo, Yoshida and Stewart

Claim 229 recites a mobile station comprising: “an allocation unit configured to allocate first data to a first one of the data channels, second data to a second one of the data channels, third data to a third one of the data channels, fourth data to a fourth one of the data channels, fifth data to a fifth one of the data channels, and sixth data to a sixth one of the data channels, and control data to the at least one control channel, respectively; a first multiplier configured to multiply the first data by  $C_{4,1}$ ; a second multiplier configured to multiply the second data by  $C_{4,1}$ ; a third multiplier configured to multiply the third data by  $C_{4,3}$ ; a fourth multiplier configured to multiply the fourth data by  $C_{4,3}$ ; a fifth multiplier configured to multiply the fifth data by  $C_{4,2}$ ; a sixth multiplier configured to multiply the sixth data by  $C_{4,2}$ ; and a seventh multiplier configured to multiply the control data by  $C_{256,0}$ , wherein . . . *the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used* . . .  $C_{I,K}$  represents an orthogonal variable spreading factor code, I being a spreading factor and K being a code number, wherein  $0 \leq K < I$ .” Here, “[a data channel is] configured to be used” may mean that data is configured to be transmitted using the data channel or that the data channel is configured to be transmitted. As discussed above, claim 229 recites the data on the first one and second one of the channels being multiplied by a first spreading code, here  $C_{4,1}$ , and the data on the third one of the data channels being multiplied by a second, which here is specifically identified as  $C_{4,3}$ .  
*wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used.* In addition to the failure of the Office Action to

identify why one of ordinary skill in the art would have been motivated to use one spreading code for two channels and another spreading code for a third channel based on Ovesjo and Yoshida, the Office Action fails to identify why it would have been obvious to modify the already defective combination of Ovesjo and Yoshida *to use the specific codes of C<sub>4,1</sub> for the data on the first one and the second one of the data channels and C<sub>4,3</sub> for the data on the third one of the data channels, wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used.* Indeed, logically, when two codes are used and the first code to be used is C<sub>4,1</sub>, one would expect that *the second code to be used to be C<sub>4,2</sub>, not C<sub>4,3</sub>*, because C<sub>4,1</sub> and C<sub>4,2</sub> are sequential to one another in the OVSF code tree. Accordingly, for at least these reasons, the rejection of claims 229 and its dependent claims should be withdrawn.

6. Independent Claim 233 is Patentable Over the Combination of Ovesjo and Yoshida

Claim 233 recites an apparatus for a mobile communication system comprising “an allocation unit configured to allocate at least first data to a first one of the data channels, second data to a second one of the data channels, and third data to a third one of the data channels, and a multiplying unit configured to multiply the first data by C<sub>4,1</sub>, the second data by C<sub>4,1</sub>, and the third data by C<sub>4,3</sub>, *wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used*, and C<sub>I,K</sub> represents an orthogonal variable spreading factor code, I being a spreading factor and K being a code number, wherein 0≤K<I.” Here, [a data channel is] configured to be used” may mean that data is

configured to be transmitted using the data channel or that the data channel is configured to be transmitted. As discussed above, claim 233 recites the data on the first one and the second one of the data channels being multiplied by a first spreading code, here  $C_{4,1}$ , and the data on the third one of the channels being multiplied by a second, which here is specifically identified as  $C_{4,3}$ , wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used. In addition to the failure of the Office Action to identify why one of ordinary skill in the art would have been motivated to use one spreading code for two channels and another spreading code for a third channel based on Ovesjo and Yoshida, the Office Action fails to identify why it would have been obvious to modify the already defective combination of Ovesjo and Yoshida to *use the specific codes  $C_{4,1}$  for the data on the first one and the second one of the data channels and  $C_{4,3}$  for the data on the third one of the data channels, wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used.* Indeed, logically, when two codes are used *for data channels* and the first code to be used is  $C_{4,1}$ , one would expect that *the second code to be used to be  $C_{4,2}$ , not  $C_{4,3}$* , because  $C_{4,1}$  and  $C_{4,2}$  are sequential to one another in the OVSF code tree. Accordingly, for at least these reasons, the rejection of claims 233 and its dependent claims should be withdrawn.

7. Independent Claim 237 is Patentable Over the Combination of Ovesjo and Yoshida

Claim 237 recites an apparatus for a mobile station comprising: “a spreading unit configured to spread a first one of the data channels and a second one of the data channels by

C<sub>4,1</sub> and to spread a third one of the data channels by C<sub>4,3</sub>, *wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be spread by the one or more orthogonal variable spreading factor codes when three and not more than three of the data channels are configured to be spread by the one or more orthogonal variable spreading factor codes*, and C<sub>I,K</sub> represents an orthogonal variable spreading factor code, I being a spreading factor and K being a code number, wherein 0≤K<I.” As similarly discussed above, in addition to the failure of the Office Action to identify why one of ordinary skill in the art would have been motivated to use one spreading code for two channels and another spreading code for a third channel based on Ovesjo and Yoshida, the Office Action also fails to identify why it would have been obvious to modify the already defective combination of Ovesjo and Yoshida to *use the specific codes C<sub>4,1</sub> for the first one and the second one of the data channels and C<sub>4,3</sub> for the third one of the data channels, wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be spread by the one or more orthogonal variable spreading factor codes when three and not more than three of the data channels are configured to be spread by the one or more orthogonal variable spreading factor codes*. Indeed, logically, when two codes are used *for data channels* and the first code to be used is C<sub>4,1</sub>, one would expect that *the second code to be used to be C<sub>4,2</sub>, not C<sub>4,3</sub>*, because C<sub>4,1</sub> and C<sub>4,2</sub> are sequential to one another in the OVSF code tree. Accordingly, for at least these reasons, the rejection of claims 237 and its dependent claims should be withdrawn.

8. Independent Claim 240 is Patentable Over the Combination of Ovesjo and Yoshida

Claim 240 recites a mobile station comprising: “a first spreading unit configured to spread at least a first one of the data channels by  $C_{4,1}$  and a third one of the data channels by  $C_{4,3}$ ; and a second spreading unit configured to spread at least a second one of the data channels by  $C_{4,1}$ , *wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used*, and  $C_{I,K}$  represents an orthogonal variable spreading factor code, I being a spreading factor and K being a code number, wherein  $0 \leq K < I$ .” Here, [a data channel is] configured to be used” may mean that data is configured to be transmitted using the data channel or that the data channel is configured to be transmitted. As similarly discussed above, in addition to the failure of the Office Action to identify why one of ordinary skill in the art would have been motivated to use one spreading code for two channels and another spreading code for a third channel based on Ovesjo and Yoshida, the Office Action also fails to identify why it would have been obvious to modify the already defective combination of Ovesjo and Yoshida to *use the specific codes  $C_{4,1}$  for the first one and the second one of the data channels and  $C_{4,3}$  for the third one of the data channels, wherein the first one of the data channels, the second one of the data channels, and the third one of the data channels are configured to be used when three and not more than three of the data channels are configured to be used*. Indeed, logically, when two codes are used *for data channels* and the first code to be used is  $C_{4,1}$ , one would expect that *the second code to be used to be  $C_{4,2}$ , not  $C_{4,3}$* , because  $C_{4,1}$  and  $C_{4,2}$  are sequential to one another in the OVSF code tree.

Accordingly, for at least these reasons, the rejection of claims 240 and its dependent claims should be withdrawn.

9. Independent Claim 243 is Patentable Over the Combination of Ovesjo and Yoshida

Claim 243 recites a method for a mobile station comprising: “spreading a first one of the data channels by  $C_{4,1}$ ; spreading a second one of the data channels by  $C_{4,1}$ ; and spreading a third one of the data channels by  $C_{4,3}$ ; **wherein when the mobile station transmits three and not more than three of the data channels, the first one of the data channels, the second one of the data channels, and the third one of the data channels are transmitted**, and  $C_{I,K}$  represents an orthogonal variable spreading factor code, with I being a spreading factor and K being a code number, wherein  $0 \leq K < I$ .” As similarly discussed above, in addition to the failure of the Office Action to identify why one of ordinary skill in the art would have been motivated to use one spreading code for two channels and another spreading code for a third channel based on Ovesjo and Yoshida, the Office Action also fails to identify why it would have been obvious to modify the already defective combination of Ovesjo and Yoshida to **use the specific codes  $C_{4,1}$  for the first one and the second one of the data channels and  $C_{4,3}$  for the third one of the data channels, wherein when the mobile station transmits three and not more than three of the data channels, the first one of the data channels, the second one of the data channels, and the third one of the data channels are transmitted**. Accordingly, for all of these reasons, the rejection of claims 243 and its dependent claims should be withdrawn..

**CONCLUSION**

In view of the foregoing amendments and arguments, it is respectfully submitted that this application is in condition for allowance. If the Examiner believes that prosecution and allowance of the application will be expedited through an interview, whether personal or telephonic, the Examiner is invited to telephone the undersigned with any suggestions leading to the favorable disposition of the application.

It is believed that all necessary fees are being charged for filing this Response. However, the Director is hereby authorized to treat any current or future reply, requiring a petition for an extension of time for its timely submission as incorporating a petition for extension of time for the appropriate length of time. Applicants also authorize the Director to charge all required fees, fees under 37 C.F.R. §1.17, or all required extension of time fees, to the undersigned's Deposit Account No. 50-0206.

Respectfully submitted,  
HUNTON & WILLIAMS LLP

Dated: June 5, 2007

By:

  
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